

IN THE CLAIMS:

The pending claims are listed below.

1. (Previously Presented) A constant-velocity joint having a tubular outer member having a plurality of axially extending guide grooves defined in an inner circumferential surface thereof and spaced at predetermined intervals, said outer member being connected to one transmission shaft, and an inner member inserted in an open internal space of said outer member and connected to another transmission shaft, wherein

said inner member comprises:

a plurality of trunnions projecting into said guide grooves ;

a ring-shaped roller held in contact with each of said guide grooves and fitted over each of said trunnions; and

a plurality of rolling elements rollingly interposed between each of said trunnions and said roller;

said roller having a flange disposed on an inner circumferential surface thereof near a projecting end of each of said trunnions, said flange projecting radially inwardly and circularly extending along said inner circumferential surface;

wherein an annular member is mounted on said trunnion near a proximal end thereof;

said rolling elements being retained between said flange and said annular member.

2. (Previously Presented) A constant-velocity joint according to claim 1, wherein said annular member has a beveled surface produced by beveling an area thereof which is held against the proximal end of said trunnion.

3. (Previously Presented) A constant-velocity joint according to claim 1, wherein a gap (X) is set between said annular member and said rolling elements for providing a predetermined distance (δ) by which said roller is movable in an axial direction of said trunnion.

4. (Withdrawn) A constant-velocity joint according to claim 1, wherein said annular member is disposed near an end face of said roller facing away from said flange, and a gap (Z) is set between said annular member and said end face for providing a predetermined distance (δ) by which said roller is movable in an axial direction of said trunnion.

5. (Previously Presented) A constant-velocity joint according to claim 1, wherein a ratio ($r1/D$) of a radius ($r1$) of curvature of an outer circumferential surface of said trunnion, which extends from a cylindrical portion of the trunnion, onto which said roller is fit, to said proximal end thereof to a diameter (D) of said cylindrical portion is set to a range from 0.05 to 0.35.

6. (Previously Presented) A constant-velocity joint according to claim 1, wherein a gap K between said rolling elements and said annular member or a gap K between said roller and said annular member is set with respect to a distance δ by which said roller is movable in an axial direction of said trunnion, according to the relationship:

$$K > \delta = R/2 \cdot (1/\cos\theta_{\max} - 1)$$

where R: the radius of rotation of the center of said roller around a central axis of said outer member; and

θ_{\max} : the maximum angle of tilt of said other transmission shaft with respect to said one transmission shaft.

7. (Withdrawn) A constant-velocity joint having a tubular outer member having a plurality of axially extending guide grooves defined in an inner circumferential surface thereof and spaced at predetermined intervals, said outer member being connected to one transmission shaft, and an inner member inserted in an open internal space of said outer member and connected to another transmission shaft, wherein

said inner member comprises:

a plurality of trunnions projecting into said guide grooves;

a ring-shaped roller held in contact with each of said guide grooves and fitted over each of said trunnions; and

a plurality of rolling elements rollingly interposed between each of said trunnions and said roller;

wherein a gap H between a proximal end of said trunnion and said rolling elements or said roller is set with respect to a distance δ by which said roller is movable with respect to said proximal end, according to the relationship:

$$H > \delta = R/2 \cdot (1/\cos\theta_{\max} - 1)$$

where R: the radius of rotation of the center of said roller around a central axis of said outer member; and

θ_{\max} : the maximum angle of tilt of said other transmission shaft with respect to said one transmission shaft.

8. (Withdrawn) A constant-velocity joint according to claim 7, wherein said roller has a flange disposed on an inner circumferential surface thereof near a projecting end of each of said trunnions, said flange projecting radially inwardly and circularly extending along said inner circumferential surface; and

said rolling elements are retained between said flange and the proximal end of said trunnion.

9. (Withdrawn) A constant-velocity joint according to claim 8, wherein the proximal end of said trunnion has a step, and rolling elements are retained between said

flange and said step.

10. (Withdrawn) A constant-velocity joint according to claim 9, wherein a radius (r_2) of curvature of an outer circumferential surface of said trunnion from a cylindrical portion of the trunnion to said step is smaller than a radius (r_3) of curvature of ends of said rolling elements near said step ($r_2 < r_3$).

11. (Withdrawn) A constant-velocity joint according to claim 7, wherein a ratio (r_1/D) of a radius (r_1) of curvature of an outer circumferential surface of said trunnion from a cylindrical portion of the trunnion to said proximal end to a diameter (D) of said cylindrical portion is set to a range from 0.05 to 0.35.

12. (Withdrawn) A constant-velocity joint according to claim 7, wherein said roller has on an inner circumferential surface thereof a first flange disposed near a projecting end of said trunnion and projecting radially inwardly, said first flange circularly extending along said inner circumferential surface, and a second flange disposed near the proximal end of said trunnion and projecting radially inwardly, said second flange circularly extending along said inner circumferential surface; and

said rolling elements are retained between said first flange and said second flange.

13. (Withdrawn) A constant-velocity joint according to claim 7, wherein a distance M between the projecting end of said trunnion and ends of said rolling elements is set with respect to a distance C by which said rolling elements (46) are movable with respect to said projecting end, according to the relationship:

$$M > C = 3R/2 (1/\cos\theta_{\max} - 1)$$

14. (Withdrawn) A tripod constant-velocity joint having a tubular outer member having a plurality of axially extending guide grooves defined in an inner circumferential surface thereof and spaced at predetermined intervals, said outer member being connected to one transmission shaft, and an inner member inserted in an open internal space of said outer member and connected to another transmission shaft, wherein

said inner member comprises:

a plurality of trunnions projecting into said guide grooves;

a ring-shaped roller held in contact with each of said guide grooves and fitted over each of said trunnions; and

a plurality of rolling elements rollingly interposed between each of said trunnions and said roller;

wherein a flange is disposed on an end of said roller in an axial direction of an inside-diameter surface thereof and projects radially inwardly, and a retaining member is mounted on another end of said roller in an annular groove for retaining said rolling

elements;

said retaining member being disposed near a proximal end of said trunnion in an axial direction thereof.

15. (Withdrawn) A constant-velocity joint according to claim 14, wherein an axial thickness ($L + \Delta A$) of a portion of said roller with said retaining member mounted thereon on one side of a central axis C extending diametrically across said roller is greater than an axial thickness (L) of another portion of said roller with said flange disposed thereon on the other side of the central axis C, said central line C being in agreement with a center of said rolling elements ($B1 = B2$) which divides an axial length thereof into two equal dimensions.

16. (Withdrawn) A constant-velocity joint according to claim 14, wherein said retaining member comprises at least a circlip.